UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,779	09/19/2003	Daniel J. Scales	A32	6408

36378   7590   12/24/2008
VMWARE, INC.
DARRYL SMITH
3401 Hillview Ave.
PALO ALTO, CA 94304

EXAMINER
CHANKONG, DOHM

ART UNIT	PAPER NUMBER
2452	

MAIL DATE	DELIVERY MODE
12/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/665,779	SCALES ET AL.
	Examiner	Art Unit	
	DOHM CHANKONG	2452	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>02 October 2008</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-7,32-43 and 49-58</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1, 4, 32-37, 39, and 40</u> is/are rejected.

7) ☒ Claim(s) <u>2,3,5-7,38,41-43 and 49-58</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is in response to Applicant's request for continued examination. Claims 1-7,

32-34, and 37-43 are amended. Claims 44-48 are canceled. Claims 49-58 are added. Thus,

claims 1-7, 32-43, and 49-58 are presented for further examination.

2.   This action is a non-final rejection.

Continued Examination Under 37 CFR 1.114

3.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 10/2/2008 has been entered.

Specification

4.   The specification is objected to as failing to provide proper antecedent basis for the

claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the

following is required: claims 37-43 and 54-58 recite a "tangible computer readable medium."

This term is not described in Applicant's specification. This rejection is necessary in order to

properly determine whether the term meets the requirements under §101. To overcome this

rejection, rather than simply reciting sections from the MPEP, Applicant need only point to the

sections of the specification which provide the "clear support...so that the meaning of the terms

in the claims are ascertainable by reference to the description."

Allowable Subject Matter

5.   Claims 2, 3, 5-7, 38, 41-43, 49-58 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

        The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 1, 4, 37, 39, and 40 are rejected under 35 U.S.C §103(a) as being unpatentable

over Saito, U.S Patent No. 5.257.386, in view of Albert et al, U.S. Patent No. 6.970.913

["Albert"].

7.   Albert was previously cited in the PTO-892 filed on 8/24/2007.

8.   As to claims 1 and 4, Saito discloses a method for responding to a request to transfer data

between a first virtual machine (VM) in a computer system and a virtual storage device backed

up by a data storage unit within a multipath data storage system, the method comprising:

identifying the request issued by the first VM, the request being a virtual data transfer request, the first VM being one of a plurality of VMs [Fig. 2: disclosing a request containing a virtual start address for main and external storage];

identifying a plurality of paths over which the data could be routed from the computer system to the data storage system and multipath routing information related to a state of each of the possible paths [column 3 «lines 46-63» | column 6 «lines 36-42» : determining whether paths are available]; and

determining VM-specific information related to the first VM [column 3 «lines 51-56» : each VM has a transfer priority];

selecting one path of the plurality of paths according to an algorithm, which takes as inputs at least contents of the multipath routing information [column 6 «lines 36-42» : selecting a path based on availability]; and

routing a physical data transfer request corresponding to the virtual data transfer request to the data storage system over the one path that was selected [column 5 «lines 5-39»]

Saito does not expressly disclose: using the contents of the VM-specific information as part of the algorithm for selecting a path. However, such a feature was well known in the art at the time of Applicant's invention as evidenced by Albert. Like Saito, Albert discloses utilizing virtual machines within a storage system [column 3 «line 59» to column 4 «line 3»]. Albert further discloses utilizing the contents of VM-specific information (a priority of the VM) as part of an algorithm for selecting a path (connection) [Fig. 12 | column 30 «lines 1-60» : selecting a connection using weights of the virtual machines]. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have modified Saito's system to

include Albert's teachings. Albert discloses that the ability to select paths based on VM-specific

information such as the VM's priority enables connection selection to based on additional factors

such as the VM's amount of processing capacity.

9.   As to claims 37 and 40, it is rejected for at least the same reasons set forth for claims 1

and 4.

10.   As to claim 39, Saito as modified by Albert discloses not routing the data to the data

storage unit [column 6 «lines 23-33»].

11.   Claims 32-36 are rejected under 35 U.S.C §103(a) as being unpatentable over Saito and

Albert, in further view of van Rietschote, U.S Patent No. 7.213.246 ["Rietschote"].

12.   As to claim 32, Saito as modified by Albert discloses all the limitations as claimed [see

rejection of claim 1] except for determining that a failure has occurred that prevents the transfer

of data over a first path of the plurality of possible paths nor does he disclose in response to this

determination, suspending the first VM. However, the feature of determining whether failures

have occurred that prevents data from being communicated and suspending a VM in response to

this determination was well known in the art at the time of Applicant's invention.

        For example, Rietschote discloses these feature in his invention directed towards failing

over a virtual machine. Specifically, Rietschote discloses determining when an application has

failed in a cluster of computer systems [column 4 «lines 9-10»] and in response to this

determination, suspending the virtual machine [column 4 «lines 10-12»]. Rietschote further

discloses that an applications may include well known applications such as email servers, web

servers, database servers [column 1 «liens 15-17»]. Clearly, since these applications are well

known to be involved in the transfer of data over a connection path, when these types of

applications fail, transfer of data from these applications over the network is prevented. In

addition, Rietschote discloses an application operating on an alternate path [Figure 1 «items 10B,

10N» where : each computer system represents an alternate path to the network 12 | column 2

«lines 52-53»].

Therefore, Rietschote discloses the missing limitations of determining that a failure has

occurred that prevents the transfer of data over a first path of the plurality of paths and

subsequently suspending the VM in response to determining that a failure has occurred [column

2 «lines 52-53» | column 4 «lines 9-12»]. It would have been obvious to one of ordinary skill in

the art to have modified Saito's system to include Rietschote's suspension functionality. One

would have been motivated to modify Saito in order to increase the fault tolerance capabilities of

his system.

13.   As to claim 33, Saito as modified by Albert does not expressly disclose that in response

to the determination that the failure has occurred that prevents the transfer of data over the first

path, failing over to one or more alternate paths. However, failing over to an alternate path when

a first path fails was a well known feature in the art at the time of Applicant's invention.

Rietschote discloses this functionality through his teaching of failing over a VM from one

computer system to a second computer system that has an alternate connection to the network

[Figure 2 | column 4 «lines 14-21» | column 6 «lines 20-30»]. It would have been obvious to one

of ordinary skill in the art to have modified Saito's system to include the failover capability

taught in Rietschote. One would have been motivated to modify Saito because such capability

enables VMs to continue communicating with the storage device even when the communication

through the first connection is impossible.

14.   As to claim 34, Saito discloses the not routing the data to the data storage unit [column 6

«lines 23-33»].

15.   As to claims 35 and 36, see the rejection of claim 1. Albert discloses assigning relative

weights or priorities to each virtual machine where one VM may have a lower weight than

another VM.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DOHM CHANKONG whose telephone number is (571)272-

3942. The examiner can normally be reached on Monday-Friday [8:30 AM to 4:30 PM].

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Follansbee can be reached on 571.272.3964. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. C./
Examiner, Art Unit 2452